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(56) Documents Cited

GB 2338772 A GB 2311209 A DE 003428795 A

US 5894628 A

(58) Field of Search

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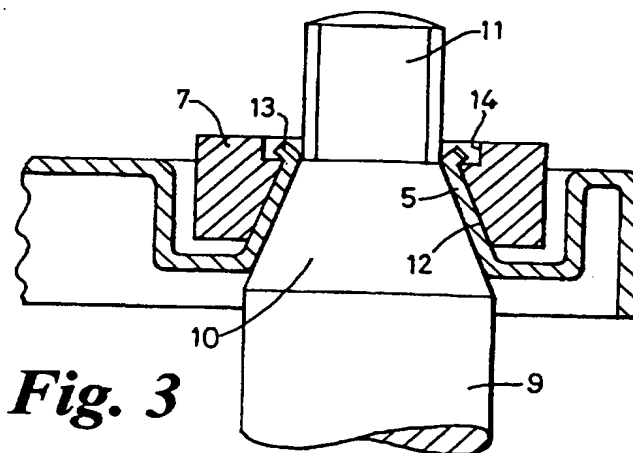
INT CL<sup>7</sup> B60S 1/34 , F16D 1/06 1/09

Online: WPI EPODOC PAJ

(54) Abstract Title

**Windscreen wiper head**

(57) A pressed sheet windscreen wiper drive head is deformed at one end to create a conical projection 5 which has a DIN taper equivalent to that of the head of a drive shaft 9 from the windscreen wiper motor. The projection is located in a surrounding depression 6 so that a washer 7 and a locating nut 8 (Fig. 1) can be partly hidden. The washer internally has the same DIN taper as the head and the projection and is retained by turning over the upper end of the projection to form a lip 13 which seats into a recess 14. It is then held onto the drive head during subsequent processing.

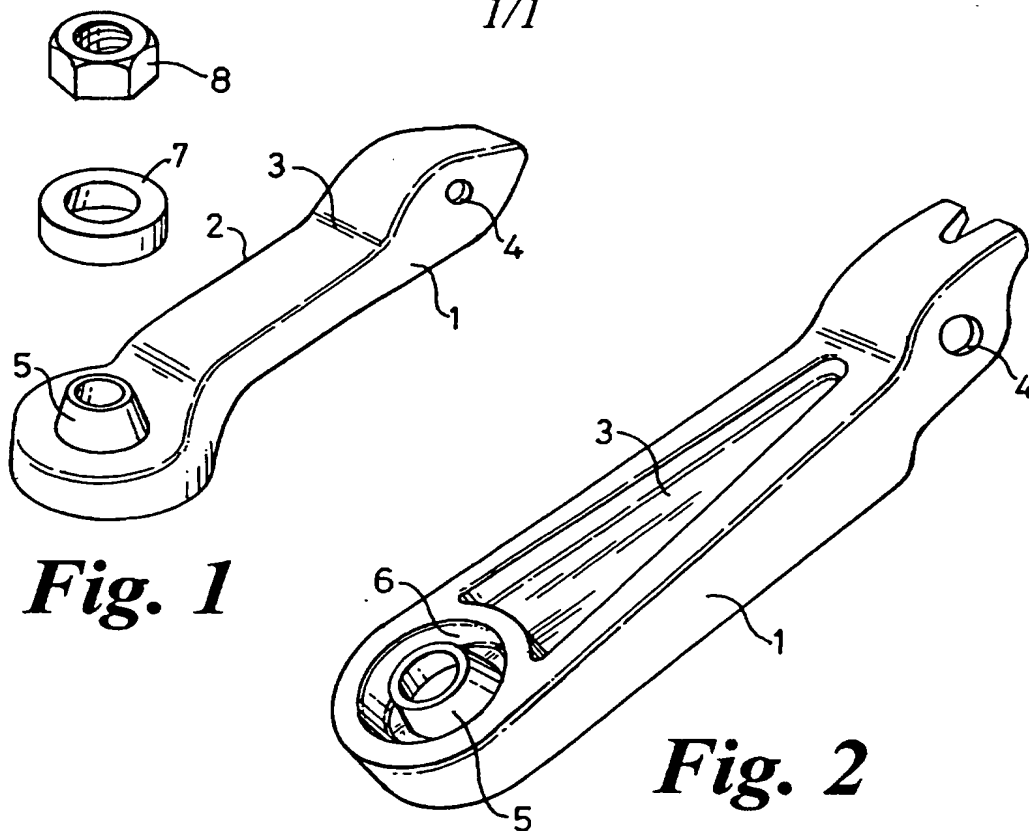


**Fig. 3**

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

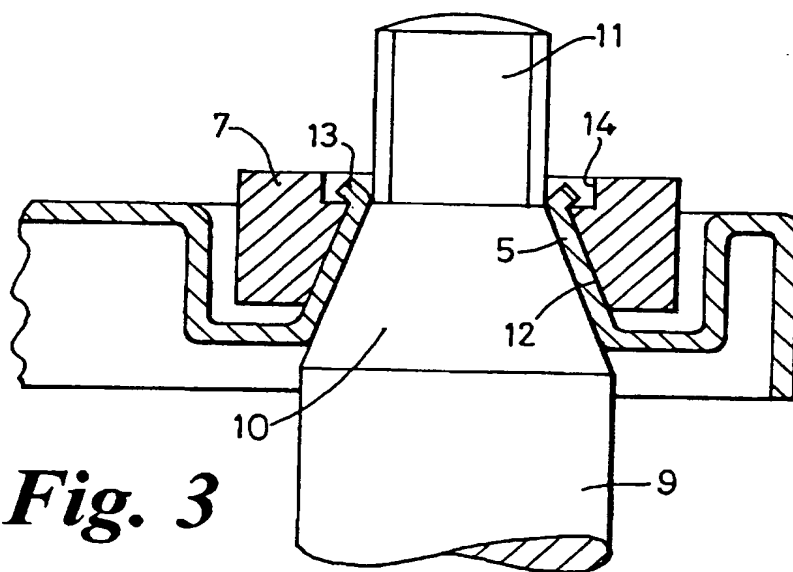
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**Fig. 1**

**Fig. 2**



**Fig. 3**

Improvements relating to Windscreen Wiper Heads

One end of a drive head of a windscreen wiper assembly is normally mounted onto a drive shaft of a drive motor. The connection of the drive shaft onto the head is by means of a DIN taper at the tip of the drive shaft which fits into a complementarily shaped recess in the head. If the head is cast from metal sheet, then the location of the tapered head to the drive shaft needs to be suitably robust.

According to the present invention there is provided a windscreen wiper drive head pressed from a sheet of metal and having at one end a locating portion where the metal is deformed to create a projection defining a tapered passageway for receipt of a DIN tapered drive shaft head, and a gripping washer located about the projection, the washer having an internal passageway formed to the same DIN taper as the projection, the upper end of the projection being turned over to form a lip over the top face of the washer to retain the washer.

This arrangement provides a suitably robust mounting for the DIN tapered drive shaft head within the pressed out tapered passageway and the washer grips around the projection when a nut is tightened onto the drive shaft. Since the washer is retained by the turned upper end of the projection, the washer cannot become detached during subsequent preparation or assembly stages.

Ideally the washer will have a recess in its top face to receive the lip on the projection.

The invention may be performed in various ways and embodiments thereof will now be described, by way of example, with reference to the accompanying drawings, in which:-

5        Figure 1 is a plan view of a windscreen wiper drive head of this invention;

Figure 2 is a perspective view of an alternative form of drive head of the invention; and

10        Figure 3 is a vertical cross-section through part of the drive head of Figure 2.

The drive head for a windscreen wiper assembly as shown in Figure 1 is pressed from sheet steel to define two side walls 1 and 2 and adjoining top wall 3. At one end holes 4 are provided in the side walls 1 and 2 to receive a pivot  
15 pin for a wiper arm retainer which will be located onto the drive head. At the other end the sheet metal is deformed to create a conical projection 5 which has a DIN taper equivalent to that of the head of a drive shaft from the windscreen wiper motor. As shown in Figure 2 the projection  
20 5 can be located in a surrounding depression 6 so that a washer 7 and a locating nut 8 can be partly hidden away.

The drive shaft 9 is shown in Figure 3 and has a splined conical drive head 10 and a screw threaded end 11. When the tapered head 10 is located into the projection 5,  
25 the nut 8 is screwed onto the threaded end 11 to drive the washer 7 into engagement with the projection 5 so as to lock the drive shaft 9 securely to the drive head. The washer 7 has a passageway 12 which is also formed to the same DIN

taper as the head 10 and of the projection 5. The washer 7 is retained in place by turning over the upper end of the projection 5 to form a lip 13 which seats into a recess 14. It is then held onto the drive head at all times, such as  
5 during painting or other preparation stages and during final assembly to the drive head. If desired an additional flat washer 15 could be provided over the top of the washer 7 and the lip 13. Alternatively or additionally the washer 7 could be in two sections, with the upper section  
10 incorporating the recess 14 which receives the lip 13.

CLAIMS

1. A windscreen wiper drive head pressed from a sheet of metal and having at one end a locating portion where the metal is deformed to create a projection defining a tapered  
5 passageway for receipt of a DIN tapered drive shaft head, and a gripping washer located about the projection, the washer having an internal passageway formed to the same DIN taper as the projection, the upper end of the projection being turned over to form a lip over the top face of the  
10 washer to retain the washer.
2. A drive head according to Claim 1, wherein the washer has a recess in its top face to receive the lip on the projection.
3. A drive head according to Claim 1 or Claim 2, including  
15 a flat washer located over the top of the gripping washer and retaining lip.
4. A windscreen wiper drive head substantially as herein described with reference to the accompanying drawings.



Application No: GB 0004907.2  
Claims searched: 1-4

Examiner: J. C. Barnes-Paddock  
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**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): F2U A4F (FAE)

Int Cl (Ed.7): B60S 1/34, F16D 1/06, 09

Other: Online: WPI EPODOC PAJ

**Documents considered to be relevant:**

| Category | Identity of document and relevant passage   | Relevant to claims |
|----------|---|--------------------|
| A        | GB2338772 A (TRICO) See Figures 3, 7 and 10. Recess mounted member with tapered bore.                                     |                    |
| A        | GB2311209 A (TRICO) See Figures 1 and 3. Wiper head with tapered projection.  |                    |
| A        | DE3428795 A (MARCHAL) See Figure 1, 3 and 6. Wiper head with tapered projection and turned out lip for abutting fastener. |                    |
| A        | US5894628 (TEVES) See Figures. Captive washer arrangements.   |                    |

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|---|---|---|--|
| X | Document indicating lack of novelty or inventive step   | A | Document indicating technological background and/or state of the art   |
| Y | Document indicating lack of inventive step if combined with one or more other documents of same category. | P | Document published on or after the declared priority date but before the filing date of this invention.          |
| & | Member of the same patent family  | E | Patent document published on or after, but with priority date earlier than, the filing date of this application. |